

IN THE CLAIMS:

Claim 1 is amended herein. Claim 37 is new. Claims 12-21, 26-33, and 35-36 were previously withdrawn. Claims 2-5, 7 and 23 had been canceled. Please note that all claims currently pending in the referenced application are shown below. Please enter these claims as amended. Upon entry, this listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently amended) An isolated or recombinant nucleic acid sequence encoding an apoptin-associating proteinaceous substance ~~-(AAP-1) and apoptin(AAP-1)~~, wherein said AAP-1 comprises amino acid positions 23 to 250 of SEQ ID NO: 6 or a functional fragment thereof, which functional fragment is able to induce apoptosis.

2-5. (Canceled)

6. (Previously presented) The isolated or recombinant nucleic acid sequence of claim 1, wherein said isolated or recombinant nucleic acid sequence encoding AAP-1 comprises nucleotide positions 142 to 829 of SEQ ID NO: 5, or a functional fragment thereof, which functional fragment is able to induce apoptosis.

7. (Canceled)

8. (Previously presented) A vector comprising the isolated or recombinant nucleic acid sequence of claim 1.

9. (Previously presented) The vector of claim 8 comprising a gene-delivery vehicle.

10. (Previously presented) A host cell comprising the isolated or recombinant nucleic acid sequence of claim 1.

11. (Previously presented) The host cell of claim 10 wherein said host cell is a yeast cell or a vertebrate cell.

12. (Withdrawn) An isolated or recombinant apoptin-associating proteinaceous substance that induces apoptosis and is encoded by the isolated or recombinant nucleic acid sequence of claim 1.

13. (Withdrawn) The isolated or recombinant apoptin-associating proteinaceous substance of claim 12 wherein said isolated or recombinant apoptin-associating proteinaceous substance co-localizes with apoptin.

14. (Withdrawn) The isolated or recombinant apoptin-associating proteinaceous substance of claim 12, wherein said isolated or recombinant apoptin-associating proteinaceous substance binds to the mouse transcription factor YY1.

15. (Withdrawn) An isolated or recombinant apoptin-associating proteinaceous substance that induces apoptosis, wherein said proteinaceous substance is encoded by the isolated or recombinant nucleic acid sequence of claim 1.

16. (Withdrawn) The isolated or recombinant apoptin-associating proteinaceous substance of claim 12 comprising at least a part of an amino acid sequence of SEQ ID NO: 6 or a functional equivalent or functional fragment thereof.

17. (Withdrawn) An isolated or synthetic antibody that specifically recognizes an isolated or recombinant apoptin-associating proteinaceous substance or functional equivalent or functional fragment thereof of claim 12.

18. (Withdrawn) An isolated or recombinant apoptin-associating proteinaceous substance that induces apoptosis or a functional equivalent or part thereof that is specifically recognized by the antibody of claim 17.

19. (Withdrawn) A method of inducing apoptosis, said method comprising:
contacting a susceptible cell with the isolated or recombinant nucleic acid sequence of claim 1,
wherein apoptosis in said susceptible cell is induced.

20. (Withdrawn) The method according to claim 19 wherein said apoptosis is p53-independent.

21. (Withdrawn) The method according to claim 19 further comprising contacting said susceptible cell with an isolated or recombinant nucleic acid sequence encoding apoptin or a functional equivalent or fragment thereof or with apoptin or a functional equivalent or fragment thereof.

22. (Previously presented) A composition comprising the isolated or recombinant nucleic acid sequence of claim 1.

23. (Canceled)

24. (Previously presented) The composition of claim 22, wherein said composition induces apoptosis.

25. (Previously presented) The composition of claim 24, wherein said apoptosis is p53-independent.

26. (Withdrawn) A method of treating an individual suffering from enhanced cell proliferation or decreased cell death, said method comprising:

administering to said individual the composition of claim 24 in an amount sufficient to treat symptoms of said disease.

27. (Withdrawn) A method of detecting the presence of cancer cells or cells that are cancer prone in a sample of cells, said method comprising:
transfecting cells in said sample with the isolated or recombinant nucleic acid sequence of claim 1; and
determining the percentage of apoptosis of cells in said sample, wherein a decrease in apoptosis as compared to normal cells is indicative of the presence of cancer cells or cells that are cancer prone.

28. (Withdrawn) A method of detecting the presence of cancer cells or cells that are cancer prone in a sample of cells, said method comprising:
transfecting said cells in said sample with the isolated or recombinant nucleic acid sequence of claim 1; and
determining the intracellular localization of a proteinaceous substance derived from said isolated or recombinant nucleic acid sequence in cells in said sample, wherein localization of said proteinaceous substance in the nucleus is indicative of the presence of cancer cells or cells that are cancer prone.

29. (Withdrawn) The method according to claim 28, wherein the presence of said proteinaceous substance in said cells is detected by immunostaining said cells with an antibody.

30. (Withdrawn) The method according to claim 29, wherein said antibody comprises an antibody that specifically recognizes an apoptin-associating proteinaceous substance or functional equivalent or functional fragment thereof.

31. (Withdrawn) A method of identifying a putative cancer-inducing agent, said method comprising:
exposing a sample of cells to a cancer-inducing agent;

contacting said sample of cells with the isolated or recombinant nucleic acid sequence of claim 1;
and
detecting the presence of cancer cells or cells that are cancer prone by determining a percentage of apoptosis of cells in said sample of cells, wherein said percentage is indicative of the carcinogenesis of said agent.

32. (Withdrawn) A method of identifying a putative cancer-inducing agent, said method comprising:
exposing a sample of cells to a putative cancer-inducing agent;
contacting said sample of cells with a proteinaceous substance of claim 12; and
detecting the presence of cancer cells or cells that are cancer prone by determining the intracellular localization of said proteinaceous substance, wherein the presence of said cancer cells or cells that are cancer prone in said sample of cells is indicative of the carcinogenesis of said agent.

33. (Withdrawn) The method according to claim 31, wherein said putative cancer-inducing agent comprises a nucleic acid sequence.

34. (Previously presented) An isolated nucleic acid sequence encoding the peptide of SEQ ID NO:6 or a functional fragment thereof, which functional fragment is able to induce apoptosis.

35. (Withdrawn) A process for producing a peptide comprising the peptide of SEQ ID NO:6, the process comprising:
recombinantly expressing the isolated nucleic acid sequence of claim 34 in a cell.

36. (Withdrawn) A peptide produced by the process of claim 35.

37. (New) The isolated or recombinant nucleic acid sequence of claim 1, wherein said isolated or recombinant nucleic sequence encoding AAP-1 further encodes apoptin.